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LETTER TO THE EDITOR

Comment on Liu et al.: Operative versus non-operative treatment for clavicle fracture: a meta-analysis

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Dear Editor,

We read with great interest the recent article entitled "Operative versus non-operative treatment for clavicle fracture: a meta-analysis" published online in May 2013 issue of International Orthopaedics by Liu et al. [1]. The authors performed a meta-analysis to evaluate operative versus non-operative treatment for clavicle fractures. They reached an important conclusion that operative treatment is better than non-operative treatment. It is a valuable study. Nevertheless, there are some comments we would like to raise related to this article.

1. The authors clearly stated that "Five studies involving 633 clavicle fractures were included" in the abstract. However, we found eight studies were included in the subsequent pooled analysis. And, it is not in accordance with the original study by Smekal et al. [2] that 68 patients were included in this article by Liu et al. [1], as shown in Table 1. Actually, the number of patients reported by Smekal et al. [2] was 60. Therefore, we conclude that five RCTs and three CCTs involving 655 clavicle fractures should be included.
2. Four electronic databases (MEDLINE, EMBASE, OVID and the Cochrane Central Register of Controlled Trials) were systematically searched by the authors. However, using the same search strategy and end of search date as those of Liu et al., we could not find two relevant studies [3, 4] that have been included in the meta-analysis even though they satisfied the search criteria. Therefore, the authors should focus specifically or in detail on the issue of the completeness of the search strategy report for databases. The search strategy report plays an important role in systematic reviews.
3. The authors have clearly stated that "The quality of the included studies was assessed by two authors" in the abstract. We consider that the authors could evaluate methodological quality for all selected studies (randomised controlled trials and controlled clinical trials), which could avoid the potential bias in this meta-analysis. However, the authors did not describe how to assess the quality of all studies in the meta-analysis and there were no detailed scores for each trial.
4. There are different approaches in either operative or nonoperative treatment for clavicle fracture. If possible, we suggest that a meta-analysis of different operative approaches versus different nonoperative treatment for clavicle fracture could be conducted.
5. The authors have clearly stated that "The difference in neurological complications (RR 0.45, 95%CI 0.25–0.81) was statistically significant between operative and non-operative treatment" in the abstract, and then they write "there was also no statistical difference in the neurological complication rate between operative and non-operative treatment" in the results part. We suggest that "no statistical difference" should be replaced by "statistical difference" in the results section. Meanwhile, the result of the forest plots for neurological complications showed that the difference was statistically significant between operative and non-operative treatment.
6. Although both techniques have been associated with excellent results in a variety of reviews, the lack of a standard operative protocol must be considered a weakness of the meta-analysis; it may be that there are fundamental differences in outcome between the two techniques. In addition, patients with a complete clavicular fracture

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may be counselled that they will be at a higher risk of sustaining nonunion and symptomatic malunion if the fracture is treated nonoperatively, since there is no clear evidence that surgical treatment will improve their long-term function in general.

In conclusion, the results of this meta-analysis by Liu et al. [1] should be interpreted with caution. To reach a definitive conclusion, further high quality RCTs based on larger sample sizes are still needed to assess the effects of operative and non-operative treatment on clavicle fractures. We believe that our remarks will contribute to a more accurate elaboration of the results presented by Liu et al. (2013).

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